

# BÖLÜM

# 42

## COVID-19 PANDEMİSİ VE PERİNATAL SONUÇLAR

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### Giriş

Yeni bir korona virüs enfeksiyonu olan COVID-19, Aralık 2019'dan itibaren, Çin'de başlayarak hızlı bir şekilde tüm dünyaya yayılmıştır. (1) Daha önceki korona virüs salgınlarından elde edilen ilgilerin ışığında, gebelerin bu virüse daha duyarlı olabileceği düşünülmektedir. COVID-19 ile enfekte olduğundan şüphelenilen veya tanısı kesinleşen gebelerin doğumumu komplike ve zorlu olmaktadır. Etkili obstetrik tedaviyi uygulamak ve hem anne hem de bebek için prognozu iyileştirmek gerekmektedir. Bu süreçte maternal ve perinatal sonuçların bilinmesi, doğum zamanının belirlenmesi, sezaryen ile doğum endikasyonlarının değerlendirilmesi, uygun doğum odasının hazırlanması, doğum anestezi şeklinin belirlenmesi ve yenidoğan yönetimi ele alınması gereken temel konulardır.

Başlıca obstetrik kuruluşlar The International Federation of Gynecology and Obstetrics (FIGO) (2), Royal College of Obstetricians and Gynaecologists (RCOG) (3), The American College of Obstetricians and Gynecologists (ACOG) (4,5) kliniklere bu bilinmeyen hastalıkta yardımcı ol-

mak için bir dizi rehber oluşturmuşlardır. Şimdiye kadar mevcut verilerin çoğu vaka çalışmaları, vaka serileri ve gözlemlsel çalışmalar şeklindedir. Bu yeni bir enfeksiyon olduğundan, COVID-19'un özellikle gebeler ve yenidoğanlar üzerindeki etkisiyle ilgili çok az şey bilinmektedir ve şu anda gebelere özel COVID-19'un değerlendirilmesi veya yönetimi ile ilgili kesin kanita dayalı bir rehber bulunmamaktadır. (5) ABD'de Hastalık Kontrol ve Önleme Merkezi (CDC), şu anda mevcut olan bilgilere dayanarak, gebelerin, gebe olmayan yetişkinlerle aynı riske sahip göründüğünü belirtmiştir.(6)

Bu kitap bölümünün amacı, COVID-19'un gebeleri nasıl etkilediğini ve perinatal sonuçlara olan etkisi ile ilgili mevcut verileri gözden geçirmektr.

### Gebelikte COVID-19 Sıklığı ve Tanısı

Çin'de COVID-19 enfeksiyonu konfirme edilmiş gebe kadınlardaki klinik özellikler gebe olmayan yetişkinlerle benzerdir ve maternal ve neonatal sonuçlar açısından COVID-19 enfeksiyonu, 2002-2003 yıllarından görülen SARS Cov -1

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olmadığından, pandemiden etkilenen ülkeler davranış değişikliğine ve diğerlerinin yanı sıra semptomatik bireylerin kendi kendine izolasyonu da dahil olmak üzere artan el hijyenı; sosyal mesafe; mümkünse evden çalışma ve okul ve iş kapanışları gibi farmasötik olmayan müda-halelere güveniyorlar. Sonuç olarak, COVID-19 salgınının ekonomik yükü, maliyetler ve iş kaybı açısından önemli olmuştur. ABD, 30 Nisan itibarıyle 30 milyon işsiz olduğunu bildirdi.(85) İngiltere, İrlanda ve İtalya'daki işsizlik oranları benzer şekilde sırasıyla % 10, % 16.5 ve %13'e yükseldi ve İspanya'da %20'ye kadar çıkması bekleniyor. COVID-19 tedavisinin doğrudan maliyetinin diğer sağlık hizmetleri üzerinde önemli bir etkisi olma-sı muhtemeldir. Halihazırda bir çok ülke elektif prosedürleri kısıtlamıştır. Elektif jinekolojik pro-sedürler de ertelenmektedir ve krizin boyutu göz önüne alındığında, bu hastaların gelecekteki te-davilerinin ne zaman yapılabileceğini belirlemek zordur. FIGO, fertilité uzmanlarının ve hastaların şu anda hamileliklerden kaçınmalarını ve tüm fertilité tedavilerini geçici olarak durdurmalarını önermektedir.(86) Ayrıca, hastaların, özellikle potansiyel maligniteleri olan hastalar olmak üzere, COVID-19 bulaşma korkusuyla başka ne-denlerle hastaneye başvurmayı geciktirdiklerine dair raporlar da vardır. Bu durum tedavi edilebilir jinekolojik maligniteleri olan hastaların geç baş-vurmalarına neden olabilir.

## Sonuç

Birincil sorumluluğumuz, tüm gebelerin gü-venli doğum hizmetlerine erişimini sağlamaktr. Bu, gebe popülasyonda COVID-19 tedavisine ilişkin kanıtlarla güncel kalmayı ve ayrıca kendi birimlerimiz içinde hastalığın yayılmasını önle-mek için sıkı enfeksiyon kontrol önlemlerini al-mayı içerir. İkinci olarak, bu süre zarfında hem hastalar hem de sağlık çalışanları gibi potansiyel olarak savunmasız olanların farkında olmalyız ve bu belirsiz zamanlarda onlara yeterli desteğin sağlanmasını sağlamalıyız. Son olarak geleceğe bakmalıyız. Bu hastalığın tedavisi yoktur ve etkili

bir tedavi seçeneği bulunana kadar bu virüsle bir arada var olma ihtimaliyle karşı karşıyayız. Yeni geliştirilen aşıların ise bize ne getireceğini uzun vadede bilmek için zaman gereklidir. Pek çok ülke günümüzde aylarda sosyal kısıtlamaları hafiflet-mek için güvenli yollar arıyor ve biz klinisyenler olarak, tüm kadınların ihtiyaç duyukları gerekli bakımı almalarını sağlamak için jinekoloji ve obs-tetri hizmetlerimizi yeniden kurmaya nasıl başla-yabileceğimizi hazırlamalı ve planlamalıyız.

## KAYNAKLAR

- WHO Rolling updates on coronavirus disease (CO-VID-19). 2020. URL: <https://www.who.int/emergencies/diseases/novel-coronavirus-2019/events-as-they-happen>.
- FIGO Safe motherhood and COVID. 2020. URL: <https://www.igo.org/safe-motherhood-and-COVID-19>.
- RCOG Coronavirus (COVID-19) infection in pregnancy. 2020.
- ACOG Novel coronavirus 2019 (COVID-19). 2020.
- ACOG Outpatient assessment and management for pregnant women with suspected or confirmed novel coronavirus (COVID-19). 2020. URL: <https://www.acog.org/-/media/project/acog/acogorg/files/pdfs/clinical-guidance/practice-advisory/COVID-19-algorithm.pdf?la=en&hash=2D9E7F62C97F8231561616FFDCA-3B1A6>.
- Prevention CCfDCa . Coronavirus disease 2019 (CO-VID-19) pregnancy and breastfeeding. 2020.
- Clinical manifestations, risk factors, and maternal and perinatal outcomes of coronavirus disease 2019 in pregnancy: living systematic review and meta-analysis *john Allotey, senior research fellow in epidemiology and women's health, Elena Stallings, researcher, Mercedes Bonet, medical office*
- Cabinet Office. Guidance. Staying alert and safe (so-ci-al distancing). Coronavirus (COVID-19) Guidance and support. Updated 22 May 2020 <https://www.gov.uk/government/publications/staying-alert-and-safe-social-distancing/staying-alert-and-safe-social-distanc-ing> (accessed 24 May 2020).
- National Health Commission of the People's Republic of China (2020). *The Notice of Launching Guideline on Diagnosis and Treatment of the Novel Coronavirus Pneumonia (NCP), 7th edn*. Available online at: <http://www.nhc.gov.cn/zytgj/s7653p/202003/46c9294a7d-fe4cef80dc7f5912eb1989.shtml> (accessed March 3, 2020).
- Qin C, Zhou L, Hu Z et al Dysregulation of immune response in patients with COVID-19 in Wuhan, Chi-na. *Clin Infect Dis*. 2020; *ciao248 10.1093/cid/ciao248*.
- Fujisaki S, Mori N, Sasaki T, Cell-mediated immunity in human pregnancy: Changes in lymphocyte reactivity during pregnancy and postpartum. *Microbiol Immu-*



- nol 1979; 23 (9): 899–907 PubMed PMID: 317125. eng.*
12. RCPI IoOAG . COVID-19 Infection Guidance for Maternity Services. Version 3.0. 2020. Available from URL: <https://www.rcpi.ie/news/releases/the-institute-of-obstetricians-and-gynaecologists-issues-guidance-on-covid-19-and-maternity-services/>.
  13. Dashraath P, Wong JLJ, Lim MXK et al Coronavirus disease 2019 (COVID-19) pandemic and pregnancy. *Am J Obstet Gynecol.* 2020; S0002-9378(20)30343-4 10.1016/j.ajog.2020.03.021.
  14. Ashokka B, Loh MH, Tan CH et al Care of the pregnant woman with COVID-19 in labor and delivery: anesthesia, emergency cesarean delivery, differential diagnosis in the acutely ill parturient, care of the newborn, and protection of the healthcare personnel. *Am J Obstet Gynecol.* 2020; S0002-9378(20)30430-0 10.1016/j.ajog.2020.04.005.
  15. Breslin N, Baptiste C, Gyamfi-Bannerman C et al COVID-19 infection among asymptomatic and symptomatic pregnant women: Two weeks of confirmed presentations to an affiliated pair of New York City hospitals. *Am J Obstet Gynecol MFM.* 2020; 100118 10.1016/j.ajogmf.2020.100118.
  16. Wu X, Sun R, Chen J. Radiological findings and clinical characteristics of pregnant women with COVID-19 pneumonia. *Int J Gynaecol Obstet* 2020. 10.1002/ijgo.13165.
  17. Arentz M, Yim E, Klaff L et al Characteristics and outcomes of 21 critically ill patients with COVID-19 in Washington state. *JAMA* 2020. PubMed PMID: 32191259. PMCID: PMC7082763. Epub 2020/03/19. eng; 323: 1612.
  18. Juusela A, Nazir M, Gimovsky M. Two cases of coronavirus 2019-related cardiomyopathy in pregnancy. *Am J Obstet Gynecol MFM.* 2020; 100113 10.1016/j.ajogmf.2020.100113.
  19. Mehta N, Chen K, Hardy E. Respiratory disease in pregnancy. *Best Pract. Res. Clin. Obstet.* 2015;29:598–611. doi: 10.1016/j.bptobgyn.2015.04.005.
  20. Rodriguez-Morales AJ, et al. Clinical, laboratory and imaging features of COVID-19: a systematic review and meta-analysis. *Travel Med. Infect Dis.* 2020;34:101623. doi: 10.1016/j.tmaid.2020.101623.
  21. Mor G, Cardenas I. The immune system in pregnancy: a unique complexity. *Am. J. Reprod. Immunol.* 2020;63:425–433. doi: 10.1111/j.1600-0897.2010.00836.x.
  22. Mor G, Cardenas I, Abrahams V. Inflammation and pregnancy: the role of the immune system at the implantation site. *Ann. N. Y. Acad. Sci.* 2011;1221:80–87. doi: 10.1111/j.1749-6632.2010.05938.x.
  23. Jamieson DJ, Theiler RN, Rasmussen SA. Emerging infections and pregnancy. *Emerg. Infect. Dis.* 2020;12:1638–1643. doi: 10.3201/eid1211.060152.
  24. Pittkin RM, Witte DL. Platelet and leukocyte counts in pregnancy. *JAMA.* 1979;242:2696–2698. doi: 10.1001/jama.1979.03300240036023.
  25. Muhibin S, Behboodi Moghadam Z, Vizheh M. Analysis of maternal coronavirus infections and neonates born to mothers with 2019-nCoV; a systematic review. *Arch Acad Emerg Med.* 2020;8:e49.
  26. Zaigham M, Andersson O. Maternal and perinatal outcomes with COVID-19: a systematic review of 108 pregnancies. *Acta Obstet Gynecol Scand.* 2020;99:823–829.
  27. Elshafeey F, Magdi R, Hindi N, et al. A systematic scoping review of COVID-19 during pregnancy and childbirth. *Int J Gynaecol Obstet.* 2020;150:47–52.
  28. Zamaniyan M, Ebadi A, Aghajanpoor S, et al. Preterm delivery, maternal death, and vertical transmission in a pregnant woman with COVID-19 infection. *Prenat Diagn.* 2020.
  29. Di Mascio D, Khalil A, Saccone G et al Outcome of Coronavirus spectrum infections (SARS, MERS, COVID 1-19) during pregnancy: a systematic review and meta-analysis. *Am J Obstet Gynecol MFM.* 2020; 100107 10.1016/j.ajogmf.2020.100107.
  30. Zaigham M, Andersson O. Maternal and perinatal outcomes with COVID-19: A systematic review of 108 pregnancies. *Acta Obstet Gynecol Scand.* 2020. 10.1111/aogs.13867, 10.1111/aogs.13867.
  31. Karami P, Naghavi M, Feyzi A et al Mortality of a pregnant patient diagnosed with COVID-19: A case report with clinical, radiological, and histopathological findings. *Travel Med Infect Dis.* 2020; 101665 10.1016/j.tmaid.2020.101665.
  32. Hantoushzadeh S, Shamshirsaz AA, Aleyasin A et al Maternal death due to COVID-19 disease. *Am J Obstet Gynecol.* 2020; S0002-9378(20)30516-0 10.1016/j.ajog.2020.04.030.
  33. Ferrazzi EM, Frigerio L, Cetin I et al COVID-19 obstetrics task force, Lombardy, Italy: Executive management summary and short report of outcome. *Int J Gynaecol Obstet.* 2020b; 149 (3): 377-378 10.1002/ijgo.13162.
  34. Favre G., Pomar L., Qi X., Nielsen-Saines K. Guidelines for pregnant women with suspected SARS-CoV-2 infection. *Lancet Infect Dis.* 2020
  35. COVID-19 FAQs for obstetrician-gynecologists, obstetrics. <https://www.acog.org/en/Clinical+Information/Physician+FAQs/COVID+19+FAQs+for+Ob+Gyns+Obstetrics>
  36. Coronavirus (COVID-19) infection and pregnancy. Royal college of obstetricians & gynaecologists. <https://www.rcog.org.uk/en/guidelines-research-services/guidelines/coronavirus-pregnancy/>
  37. Sterne J.A.C., Harbord R.M. Funnel plots in meta-analysis. *Stata J Promot Commun Stat Stata.* 2004;4:127–141.
  38. Impact of COVID-19 on maternal and neonatal outcomes: a systematic review and meta-analysis Francesca Di Toro 1, Mattheus Gjoka
  39. Lam, C. M, Wong, S. F, Leung, T. N, et al. (2004). A case-controlled study comparing clinical course and outcomes of pregnant and non-pregnant women with severe acute respiratory syndrome. *BJOG* 111, 771–774. doi: 10.1111/j.1471-0528.2004.00199.x
  40. Goodnight, W. H., and Soper, D. E. (2005). Pneumonia in pregnancy. *Crit. Care Med.* 33,S390–397. doi: 10.1097/01.ccm.0000182483.24836.66
  41. Chen, S., Huang, B., Luo, D. J., et al. (2020). Pregnant women with new coronavirus infection: a clinical characteristics and placental pathological analysis of th-



- ree cases. *Zhonghua Bing Li Xue Za Zhi* 49:E005. doi: 10.3760/cma.j.cn112151-20200225-00138
42. Ng, W. F., Wong, S. F., Lam, A., et al. (2006). The placentas of patients with severe acute respiratory syndrome: a pathophysiological evaluation. *Pathology* 38, 210–218. doi: 10.1080/00313020600696280
43. Mullins E, Evans D, Viner RM. Coronavirus in pregnancy and delivery: Rapid review. *Ultrasound Obstet Gynecol* 2020. PubMed PMID: 32180292. Epub 2020/03/17. eng; 55: 586–592
44. Chen H, Guo J, Wang C, Clinical characteristics and intrauterine vertical transmission potential of COVID-19 infection in nine pregnant women: A retrospective review of medical records. *Lancet* 2020;395(10226):809–815. PubMed PMID: 32151335. PMCID: PMC7159281. Epub 2020/02/12. eng, 815.
45. Blencowe H., Cousins S., Oestergaard M.Z., National, regional, and worldwide estimates of preterm birth rates in the year 2010 with time trends since 1990 for selected countries: a systematic analysis and implications. *Lancet*. 2012;379:2162–2172.
46. Mendz G.L., Kaakoush N.O., Quinlivan J.A. Bacterial aetiological agents of intra-amniotic infections and preterm birth in pregnant women. *Front Cell Infect Microbiol*. 2020;3:58.
47. RCOG . Coronavirus (COVID-19) infection in pregnancy information for healthcare professionals Version 8 2020. Available from URL: <https://www.rcog.org.uk/globalassets/documents/guidelines/2020-04-17-coronavirus-COVID-19-infection-in-pregnancy.pdf>.
48. Baud D, Greub G, Favre G et al Second-trimester miscarriage in a pregnant woman with SARS-CoV-2 infection. *JAMA*. 2020; e207233 10.1001/jama.2020.7233
49. Aliji N, Aliu F. Oligohydramnion in COVID19. *Eur J Obstet Gynecol Reprod Biol*. 2020; S0301-2115 (20): 30232–30233 <https://doi.org/10.1016/j.ejogrb.2020.04.047>.
50. Zhang Y, Chen R., Wang J,medRxiv; 2020. Anaesthetic management and clinical outcomes of parturients with COVID-19: a multicentre, retrospective, propensity score matched cohort study.<https://www.medrxiv.org/content/10.1101/2020.03.24.20042176v1>
51. Edwards M.O., Kotecha S.J., Kotecha S. Respiratory distress of the term newborn infant. *Paediatr Respir Rev*. 2013;14:29–37.
52. Clinical manifestations and perinatal outcomes of pregnant women with COVID19: a systematic review and metaanalysis Jeong Yee1,3, Woorim Kim2,3, Ji Min Han1,
53. Poon L.C, Yang H, Kapur A, Global interim guidance on coronavirus disease 2019 (COVID-19) during pregnancy and puerperium from FIGO and allied partners: information for healthcare professionals. *Int J Gynecol Obstet*. 2020;149:273–286.
54. Chen H, Guo J, Wang C, et al. Clinical characteristics and intrauterine vertical transmission potential of COVID-19 infection in nine pregnant women: a retrospective review of medical records
55. Murphy S. Newborn baby tests positive for coronavirus in London. *The Guardian*. 2020;14.
56. Hamming, I., Timens, W., Bulthuis, (2004). Tissue distribution of ACE2 protein, the functional receptor for SARS coronavirus. A first step in understanding SARS pathogenesis. *J. Pathol.* 203, 631–637. doi: 10.1002/path.1570
57. Zheng, Q. L. D. T, and Jin, L. P. (2020). Single-cell RNA expression profiling of ACE2 and AXL in the human maternal–Fetal interface. *Reprod. Dev. Med.* 4, 7–10. doi: 10.1093/infdis/130.5.502
58. Ferrazzi E, Frigerio L, Savasi V et al Vaginal delivery in SARS-CoV-2 infected pregnant women in Northern Italy: a retrospective analysis. *BJOG*. 2020. 10.1111/1471-0528.16278.
59. Ashokka B, Loh MH, Tan CH et al Care of the pregnant woman with COVID-19 in labor and delivery: anesthesia, emergency cesarean delivery, differential diagnosis in the acutely ill parturient, care of the newborn, and protection of the healthcare personnel. *Am J Obstet Gynecol*. 2020: S0002-9378(20)30430-0 10.1016/j.ajog.2020.04.005.
60. Dennis AT, Hardy L, Leeton L. The prone position in healthy pregnant women and in women with preeclampsia—a pilot study. *BMC Pregnancy Childbirth* 2018; 18 (1): 445 PubMed PMID: 30445912. PMCID: PMC6240306. Epub 2018/11/16. eng.
61. Akatsuka M, Tatsumi H, Yama N. Therapeutic evaluation of computed tomography findings for efficacy of prone ventilation in acute respiratory distress syndrome patients with abdominal surgery. *J Crit Care Med (Targu Mures)* 2020; 6 (1): 32–40 PubMed PMID: 32104729. PMCID: PMC7029406. Epub 2020/01/31. eng.
62. Alzamora MC, Paredes T, Caceres D,. Severe COVID-19 during pregnancy and possible vertical transmission. *Am J Perinatol*. 2020. 10.1055/s-0040-1710050.
63. Klok FA, Kruip MJHA, van der Meer NJM et al Incidence of thrombotic complications in critically ill ICU patients with COVID-19. *Thromb Res*. 2020: S0049-3848 (20): 30120-1 10.1016/j.thromres.2020.04.013.
64. Cui S, Chen S, Li X,. Prevalence of venous thromboembolism in patients with severe novel coronavirus pneumonia. *J Thromb Haemost*. 2020. 10.1111/jth.14830, 10.1111/jth.14830.
65. Tang N, Bai H, Chen X,. Anticoagulant treatment is associated with decreased mortality in severe coronavirus disease 2019 patients with coagulopathy. *J Thromb Haemost* 2020. PubMed PMID: 32220112. Epub 2020/03/27. eng; 18: 1094–1099.
66. Di Renzo GC, Giardina I. Coronavirus disease 2019 in pregnancy: consider thromboembolic disorders and thromboprophylaxis. *Am J Obstet Gynecol*. 2020: S0002-9378 (20): 30465-8 10.1016/j.ajog.2020.04.017.
67. McIntosh JJ. Corticosteroid guidance for pregnancy during COVID-19 pandemic. *Am J Perinatol* 2020. 10.1055/s-0040-1709684.
68. Davanzo R, Moro G, Sandri F,. Breast feeding and coronavirus disease-2019: Ad interim indications of the Italian Society of Neonatology endorsed by the Union of European Neonatal & Perinatal Societies. *Matern Child Nutr*. 2020: e13010 10.1111/mcn.13010.
69. Pasarella G, Strumia A, Piliego C et al COVID-19 diagnosis and management: a comprehensive review. *J In-*



- tern Med.* 2020; 10.1111/joim.13091.
70. Wang M, Cao R, Zhang L et al Remdesivir and chloroquine effectively inhibit the recently emerged novel coronavirus (2019-nCoV) in vitro. *Cell Res* 2020; 30 (3): 269–271 PubMed PMID: 32020029. PMCID: PMC7054408. Epub 2020/02/04. eng.
71. Gao J, Tian Z, Yang X. Breakthrough: Chloroquine phosphate has shown apparent efficacy in treatment of COVID-19 associated pneumonia in clinical studies. *Biosci Trends* 2020; 14: 72–73 PubMed PMID: 32074550. Epub 2020/02/19. eng.
72. Yao X, Ye F, Zhang M et al In vitro antiviral activity and projection of optimized dosing design of hydroxychloroquine for the treatment of severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2). *Clin Infect Dis*. 2020; ciaa237 10.1093/cid/ciaa237.
73. Gautret P, Lagier JC, Parola P et al Hydroxychloroquine and azithromycin as a treatment of COVID-19: results of an open-label non-randomized clinical trial. *Int J Antimicrob Agents*. 2020; 105949 10.1016/j.ijantimicag.2020.105949.
74. Garcia-Cremades M, Solans BP, Hughes E et al Optimizing hydroxychloroquine dosing for patients With COVID-19: an integrative modeling approach for effective drug repurposing. *Clin Pharmacol Ther*. 2020; 10.1002/cpt.1856
75. Javelot H, El-Hage W, Meyer G. COVID-19 and (hydroxy)chloroquine-azithromycin combination: Should we take the risk for our patients? *Br J Clin Pharmacol*. 2020; 10.1111/bcp.14335.
76. McCreary EK, Pogue JM. Coronavirus disease 2019 treatment: A review of early and emerging options. *Open Forum Infect Dis* 2020; 7 (4): ofaa105 PubMed PMID: 32284951. PMCID: PMC7144823. Epub 2020/03/23. eng.
77. Costanzo M, De Giglio MAR, Roviello GN. SARS-CoV-2: recent reports on antiviral therapies based on lopinavir/ritonavir, darunavir/umifenovir, hydroxychloroquine, remdesivir, favipiravir and other drugs for the treatment of the new Coronavirus. *Curr Med Chem*. 2020; 10.2174/0929867327666200416131117.
78. Cao B, Wang Y, Wen D et al A trial of Lopinavir-ritonavir in adults hospitalized with severe Covid-19. *N Engl J Med* 2020. PubMed PMID: 32187464. PMCID: PMC7121492. Epub 2020/03/18. eng; 382: 1787–1799.
79. Röhr S, Müller F, Jung F. Psychosocial impact of quarantine measures during serious coronavirus outbreaks: A rapid review. *Psychiatr Prax* 2020; 47 (4): 179–189 PubMed PMID: 32340047. Epub 2020/04/27. ger.
80. Fatke B, Hözlé P, Frank A. Psychische Probleme in der Pandemie – Beobachtungen während der COVID-19-Krise [COVID-19 Crisis: Early Observations on a Pandemic's Psychiatric Problems]. *Dtsch Med Wochenschr*. 2020; 10.1055/a-1147-2889.
81. Rashidi Fakari F, Simbar M. Coronavirus pandemic and worries during pregnancy; a letter to editor. *Arch Acad Emerg Med* 2020; 8 (1): e21 PubMed PMID: 32185371. PMCID: PMC7075675. Epub 2020/03/16. eng.
82. Corbett GA, Milne SJ, Hehir MP. Health anxiety and behavioural changes of pregnant women during the COVID-19 pandemic. *Eur J Obstet Gynecol Reprod Biol*. 2020; S0301-2115 (20): 30190–30191 https://doi.org/10.1016/j.ejogrb.2020.04.022.
83. Bohlken J, Schömig F, Lemke MR. COVID-19 pandemic: Stress experience of healthcare workers—A short current review. *Psychiatr Prax* 2020; 47 (4): 190–197 PubMed PMID: 32340048. Epub 2020/04/27. ger.
84. Sun N, Wei L, Shi S et al A qualitative study on the psychological experience of caregivers of COVID-19 patients. *Am J Infect Control*. 2020; S0196-6553 (20): 30201–30207. 10.1016/j.ajic.2020.03.018.
85. Dmitrieva K. Job losses deepen in pandemic with U.S. Tally topping 30 million 2020. Available from URL: <https://www.bloomberg.com/news/articles/2020-04-30/another-3-8-million-in-u-s-filed-for-jobless-benefits-last-week>.
86. FIGO . Fertility Treatment and COVID-19. 2020. URL: <https://www.igo.org/fertility-treatment-and-COVID-19>.